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Dated 15 MAY 1998

Patents Form 1/77

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25APR97 E270154-1 C22052
P01/7700 25.00

Request for grant of a patent

the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

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1. Your reference

2. Patent application number *(The Patent Office will fill in this part)* **9708327.3** 25 APR 1997

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

MUMTAZ SHAH

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CHORLTON CUM HARDY
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THE PATENT OFFICE
25 APR 1997
RECEIVED BY POST

Patents ADP number *(if you know it)* 6372645001

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

CUTTING SHEET MATERIAL

5. Name of your agent *(if you have one)*

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

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Manchester
M2 7BD

51:7
24/4/98
JG

Patents ADP number *(if you know it)* 7153927001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*
NO		

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*
NO	

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

a) any applicant named in part 3 is not an inventor, or
b) there is an inventor who is not named as an applicant, or
c) any named applicant is a corporate body.
See note (d))

NO

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9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form	0
Description	6
Claim(s)	0
Abstract	No 0
Drawing(s)	1

10. If you are also filing any of the following, state how many against each item.

Priority documents	0
Translations of priority documents	0
Statement of inventorship and right to grant of a patent *(Patents Form 7/77)*	0
Request for preliminary examination and search *(Patents Form 9/77)*	0
Request for substantive examination *(Patents Form 10/77)*	0
Any other documents *(please specify)*	0

11. I/We request the grant of a patent on the basis of this application.

Signature M. Shah Date 23 APR 97

(M. SHAH)

12. Name and daytime telephone number of person to contact in the United Kingdom

M. SHAH 0161 8811417

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After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.

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CUTTING SHEET MATERIAL

This invention relates to apparatus for cutting sheet material.

For cutting sheet material such as paper or cloth, it is known to use cutting apparatus as an alternative to shears, scissors or a guillotine, which generally comprises a blade mounted to be slidable along some form of linear guide to produce a straight line cut, for example along a measured line for cutting paper or cloth to a required length. An example of such a cutter is the Applicant's own British Patent, GB 2223976, wherein a blade runs along guides in an arm which is shaped to place the sheet under tension to enable a clean cut to be made by the blade.

Such cutters are useful for cutting sheets to predetermined sizes, for office use, or for cutting wallpaper to a required length. The blade is however constrained to move only along the guide, and thus cannot be used for cutting other than straight lines, or for example for cutting out paper shapes, or cloth to a pattern, and heretofore scissors or shears have to be used for such purposes.

An object of the invention is to provide apparatus for cutting sheet material which can be used to cut along other than straight lines, and which preferably can be used freely, without restriction over the area of a sheet of material.

According to the invention, apparatus for cutting sheet material comprises a lower part, an upper part disposed above said lower part, with a gap between said upper and lower parts to receive a piece of sheet material, and a cutting blade secured in said upper and lower parts and extending across said gap.

The cutting blade may be the only mechanical connection between the upper and lower parts, so that there is no obstruction to free movement of the apparatus when engaged with a sheet.

Resilient tensioning means may be provided, mounted on one of the parts, to bear on the other part, so that said piece of sheet material can be inserted between said resilient tensioning means and said other part to tension the sheet material in the vicinity of the blade, to thus assist a clean cutting action. Such tensioning means mat also help to distribute a user's hand pressure on the upper part to the lower part without strees on the blade.

The facing surfaces of the parts may be provided, to each side of the blade, with complementary respective convex and concave curvature, to assist in tensioning of the sheet.

The underside of the lower part may be provided with runners or slides, or optionally, rotatable members, to enable

the lower part to be moved over a supporting surface, such as a cutting table. The runners or slides may comprise inverted domes having a smooth finish, or rotable members such as wheels or rollers mounted on the lower part, or recessed ballbearings in sockets or races formed in the underside of the lower part.

The upper part may be shaped and configured to provide a hand grip suitable for manipulation of the apparatus, and to guide and move the apparatus as required.

An embodiment of apparatus according to the invention for cutting sheet material will now be described by way of example, with reference to the accompanying drawings, wherein:-

Fig. 1 is a transverse sectional view of the apparatus;

Fig. 2 is a longitudinal sectional view of the apparatus; and

Fig. 3 is a side view of the apparatus.

Apparatus according to the invention for cutting sheet material, as shown in the drawings, comprises an assembly 10, comprising a lower part 11, and an upper part 12. The upper and lower parts are assembled so that a gap 13 is present between them, and the only mechanical connection between the parts is a cutting blade 14, which prevents the parts from being separated.

The lower part 11 is provided at its front and rear ends with respective groups of runners 15, in the form of inverted domes. These are preferrably of a self-lubricating plastics material such as PTFE, or of metal. These runners 15 enable the lower part 11 to be moved freely about a surface 16 such as a table.

The upper part 12 is shaped to provide a hand grip surface 17. Blade 14 is held at its upper end in a holder 18 secured in a recess 19 in the upper part 12. The lower end of blade 14 is held in a further holder 20 secured in a recess 21 in the lower part 11. The blade 14 can be removed and replaced in the holders, for example to replace broken or blunted blades. The position of the blade can be adjusted periodically up or down to present a different part of its cutting edge to sheet material 23, thereby extending the useful life of the blade.

A pair of spherical tensioning members 22 are mounted with springs in the upper part 12, and are spring loaded into engagement with the lower part 11. The members 22 are disposed one to each side of and in front of the blade 14.

Sheet 23 of a material such as paper, is inserted into the gap 13 until the edge of the sheet abutts the cutting edge of blade 14, and members 22 press on the sheet, pressing it

against the upper surface of lower part 11, and subjecting the sheet 23 to tension in the zone of the blade 14. This enables a clean cut to be made by the blade as the apparatus is moved over the support surface 16. An under surface 25 of upper part 12 is formed with a concave curve to each side of the blade 14, and an upper surface 26 of lower part 11 is formed with a matching convex curve, to achieve optimum tensioning of the sheet 23 in the area of blade 14.

The weight exerted by the user's hand is passed on to the lower part 11 mainly through the members 22 and the opposing curved parts of surfaces 25, 26 rather than through the blade 14, since otherwise the strain on the blade would lead to frequent breakages.

A lens 27, eg. of transparent plastics, is provided in the upper front part of the upper part 12, so that the area of sheet 23 close to the blade can be viewed in magnified close-up. This can be used to ensure that the blade is being tracked accurately on a pre-drawn pattern line for example.

In use, the upper part 12 of the cutter will tend to be forced down towards the front, placing the main load of hand pressure on the area in front of the blade. As there is no obstruction to the sheet 23 other than the blade in the gap 13, the apparatus can be moved freely over the support surface 16, cutting along any desired path. This can be used, not only to

cut to measured lengths and along straight measured ruled lines, for example in cutting wrapping paper to length, but also to follow curves etc. as in cutting out paper patterns, or cutting cloth to a pattern for dressmaking; or in decorating cutting the edge of wallpaper to conform to a non-straight-edge feature such as a moulding. A wide range of sheet materials may be cut using the apparatus, including plastics and plastics coated fabrics, as well as textiles, paper, card, rubber etc.

THe above is one example of a possible form of apparatus according to the invention, and many of the details may be varied within the scope of the invention. For example instead of runners 15, rollers, wheels, or recessed ball-bearings may be used to allow the lower part to move freely.

THe number and placing of the tensioning members 22 may also be varied; most probably by providing a greater number to transmit substantially all the hand pressure load to the lower part without stressing the blade. THe blade may be doubleedged, to provide for either two-direction cutting, or for reversing the blade to extend life.

Further, the shape and configuration of the upper part may be varied to provide a suitable or comfortable hand hold in different styles and sizes for single or double-handed operation, for various sizes of hands, or a joy-stick style handle used.

Fig. 1

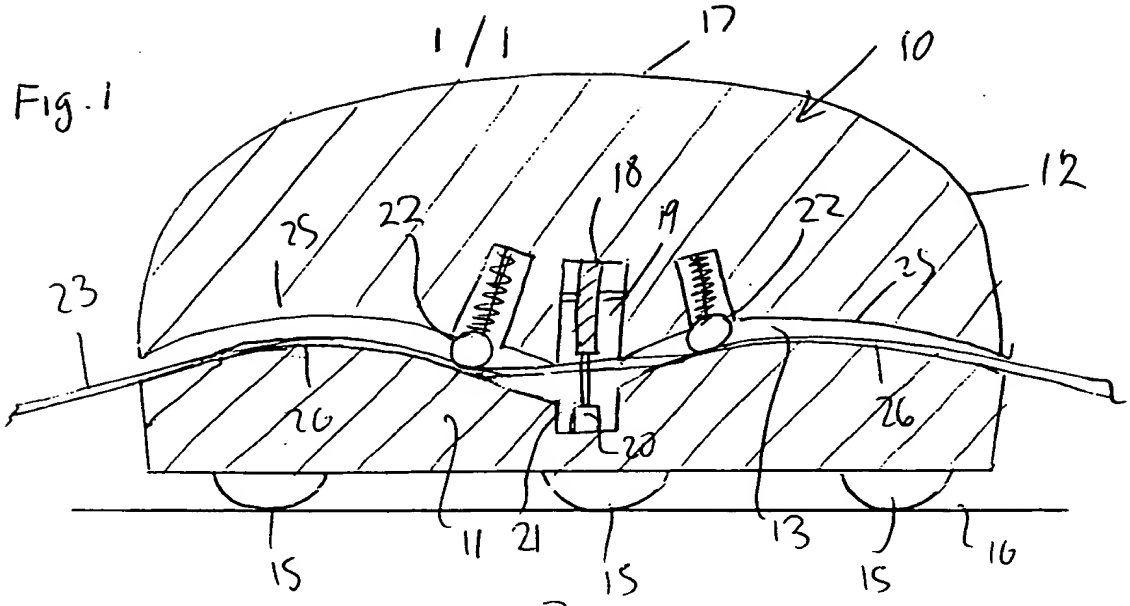


Fig. 2

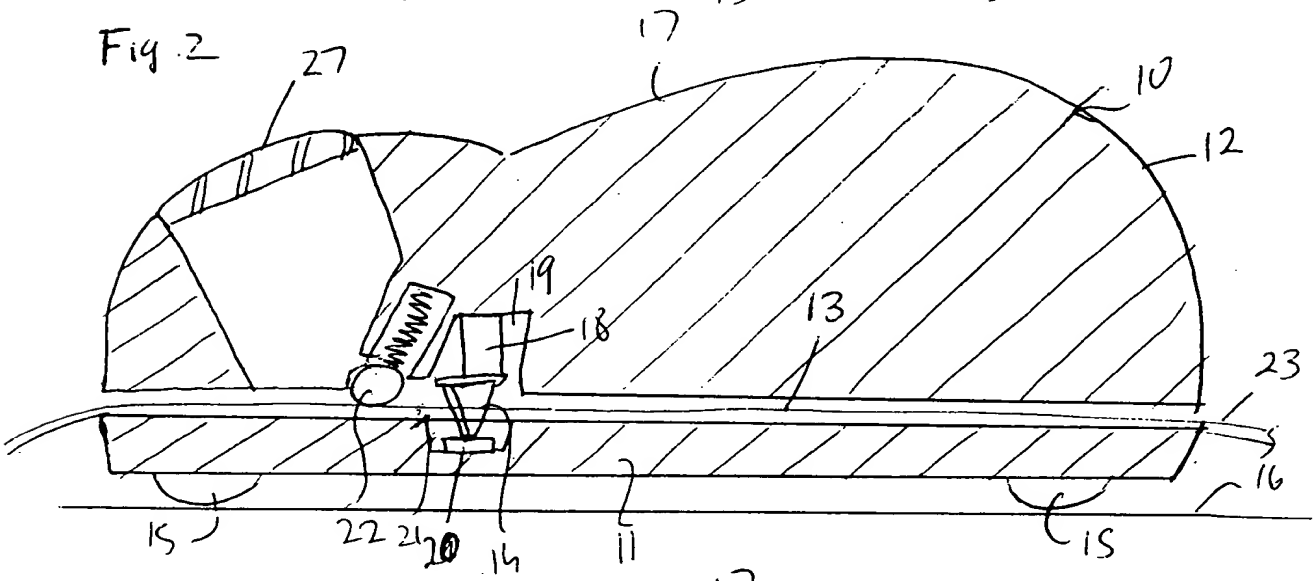
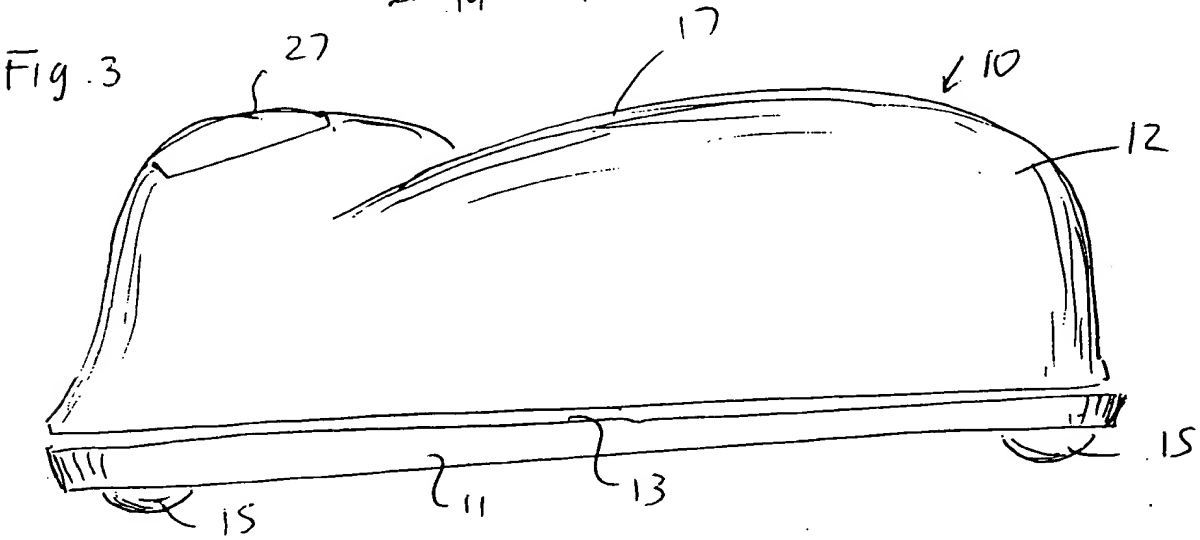


Fig. 3



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Reference 12

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